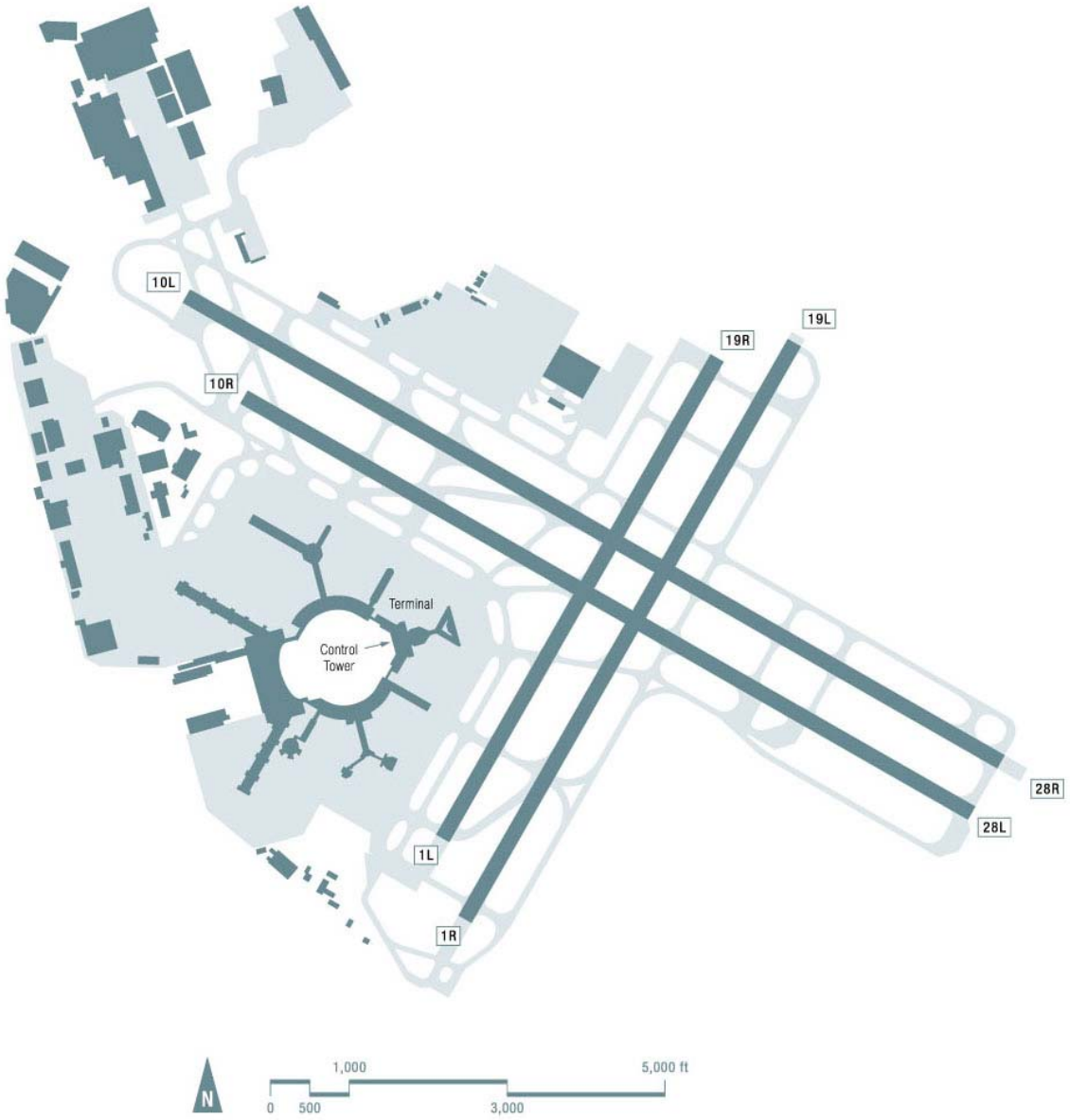
SAN FRANCISCO– San Francisco International (SFO)



Benchmark Results

- The capacity benchmark for San Francisco International Airport today is 105-110 flights per hour (arrivals and departures) in Optimum weather.
- The benchmark rate decreases to 81-93 flights per hour in Marginal conditions and to 68-72 flights per hour in IFR conditions.
- Arrivals and departures at SFO use the closely spaced parallel runways. Such operations are sensitive to wake turbulence produced on the adjacent runway. The capacity at SFO is strongly influenced by the fleet mix at the airport, particularly the proportions of Small and Heavy aircraft.
- Note that these benchmark rates do not always represent balanced operations. Rather, there may be more departures than arrivals during the hour, or more arrivals than departures. If the facility reported rates are significantly unbalanced (i.e., unequal numbers of arrivals and departures), the benchmark rates will be unbalanced as well. The facility reported rates reflect current operations at the airport during a busy hour, but such unbalanced rates cannot be sustained for extended periods.
- Technology and procedural improvements are expected to increase the benchmark rate by up to 9 percent in Optimum conditions, 41 percent in Marginal conditions, and 1 percent in IFR conditions. The benefit in Optimum and IFR conditions derives from improved delivery accuracy that is assumed to result from advanced TMA and RNAV procedures.
- Another planned improvement, CEFR, will allow suitably equipped aircraft to maintain visual separations in Marginal conditions. Paired approaches to lower minima, based on SOIA or RPAT approach procedures, will also increase the Marginal benchmark rate at SFO.
- In the following charts, please note that a number of hourly traffic points fall outside the calculated capacity curves at SFO, especially in IFR conditions. There are many possible reasons why this may occur without affecting operational safety. For example, actual weather conditions during the hour may have been better than the hourly readings in the database, allowing more efficient ATC procedures than were modeled.

These values were calculated for the Capacity Benchmarking task and should not be used for other purposes, particularly if more detailed analyses have been performed for the airport or for the individual programs.

The list of Planned Improvements and their expected effects on capacity does not imply FAA commitment to or approval of any item on the list.

SAN FRANCISCO – San Francisco International Airport (SFO)

Weather	*Scenario*	*Configuration*	*Procedures*	*Benchmark Rate (per hour)*
Optimum Rate	**Today**	Arrivals on Runways 28L, 28R Departures on 1L, 1R *Frequency of Use: 86% in optimum conditions*	Visual approaches, visual separation	**105-110**
Ceiling and visibility above minima for visual approaches (3500 ft ceiling and 8 mi visibility)	**New Runway**	N/A		**N/A**
Occurrence: 74%	**Planned improvements (2013)**	Same		**114**
Marginal Rate	**Today**	Arrivals on Runways 28L, 28R Departures on 1L, 1R *Frequency of Use: 73% in optimum conditions*	Instrument approaches, visual separation	**81-93**
Below visual approach minima but better than instrument conditions	**New Runway**	N/A		**N/A**
Occurrence: 20%	**Planned improvements (2013)**	Same	Paired approaches, visual separation	**114**
IFR Rate	**Today**	Arrivals on Runways 28L, 28R Departures on 1L, 1R *Frequency of Use: 77% in optimum conditions*	Instrument approaches, radar separation	**68-72**
Instrument conditions (ceiling < 1000 ft or visibility < 3.0 miles)	**New Runway**	N/A		**N/A**
Occurrence: 6%	**Planned improvements (2013)**	Same		**69**

NOTE: Data on frequency of occurrence of weather and runway configuration usage is based on FAA ASPM data for January 2000 to July 2002 (excluding 11-14 September 2001), 7 AM to 10 PM local time.

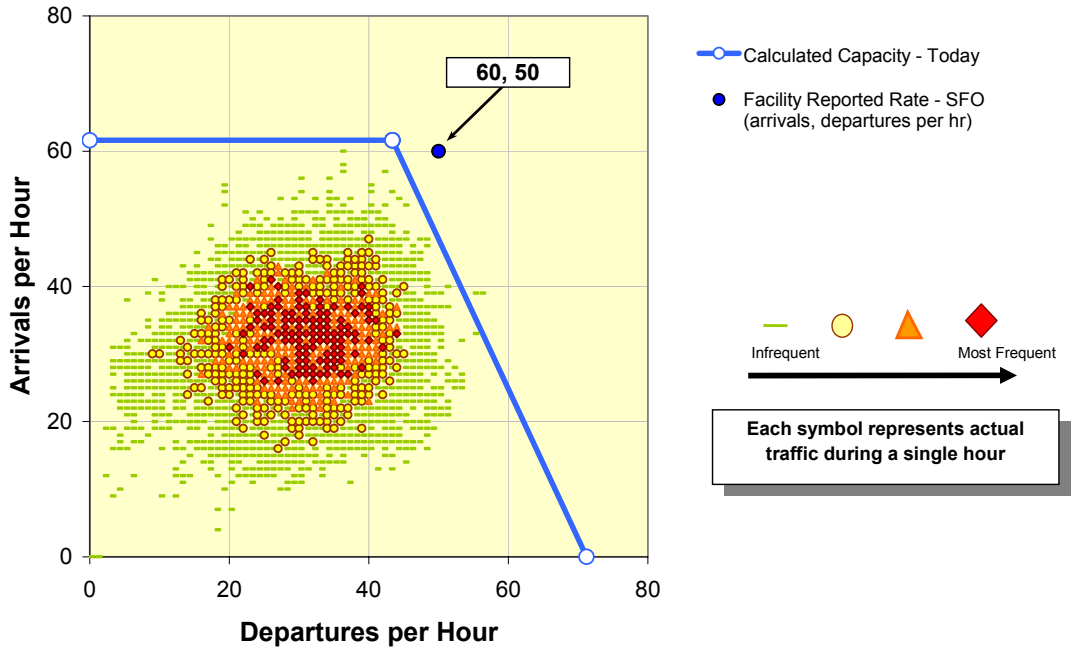
Planned Improvements at SFO include:

- CEFR, for reduced in-trail separations between arrivals in Marginal conditions.
- A Precision Runway Monitor (PRM) is also planned, which will allow Simultaneous Offset Instrument Approach (SOIA) operations on the parallel runways. SOIA operations will be conducted during periods of Optimum and Marginal conditions.
- Advanced TMA/RNAV, to improve delivery accuracy and help SFO consistently utilize available capacity.

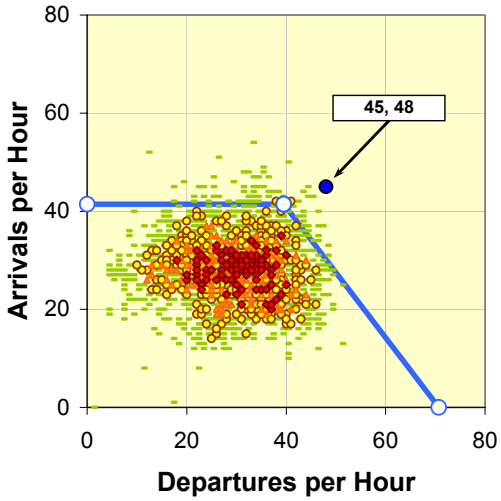
Additional information on these improvements may be found in the Introduction and Overview of this report, under “Assumptions.”

Calculated Capacity (Today) and Actual Throughput

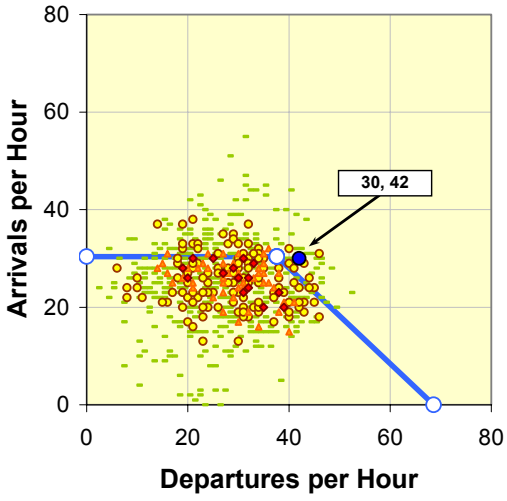
Optimum Rate



Marginal Rate



IFR Rate



Hourly traffic data was obtained from the FAA ASPM database for January 2000 to July 2002 (excluding 11-14 September 2001), 7 AM to 10 PM local time. Facility reported rates were reviewed by ATC personnel at SFO.